



# OTVARC Oscillator

The Oregon Tualatin Valley Amateur Radio Club Newsletter

August 1993

## From the President's Desk

By Dale Mosby, N7PEX

Field Day is over and I have my station reassembled. I haven't been on the air much though, just a couple hours on 20 meters at home. A couple weeks ago my wife and I made a trip to Eugene for a visit with family members. The weekend before that I fitted both cars with a bracket that will let me attach a borrowed hustler vertical. I ran coax to the interior and a new set of leads directly from the battery.

During our trip I spent about half the time listening and talking on the radio. Contacts were mostly California or the Central United States. This was my first venture into "mobile hamming" on the HF bands and was a lot of fun. I found the Hustler to have fairly good bandwidth on 20 meters. I did make the mistake of doing the initial tune-up while parked about 4 feet from the house (and metal gutter). I had to make a slight adjustment to improve the SWR when the car was moved away from the house.

If you have any good field day photos please let me know. I would like to get a couple in the newsletter. I also am interested in your ideas for programs for OTVARC meetings. I don't have anything planned for November, and any ideas not used this year will be passed on to the group in charge next year. At the August meeting Tim Taylor, N7UCA, will talk about emergency services.

*Continued at right ...*

## At the Next Meeting:

Wednesday, August 4: Board meeting. 7PM - location is at Geno's (KA7KBH) place. Contact any board member for address.

Club meeting August 11. This month's program is on emergency services, given by Tim Taylor, N7UCA. Tim has been highly active in public and emergency service operations for many years.

## Inside This Issue:

- Address Check
- Tower Update
- "Real" Ham Housing Developments
- Classified Ads
- OTVARC Contacts
- Membership Renewal Form
- Much, much more....

In September Eric LeMoine, KB7TSN, will show slides of his recent Mt. McKinley climb and talk about the part ham radio played in that event. I have now seen the slides and they are spectacular. I am sure you will really enjoy this presentation. I hope to have a program on Amateur Television in October, but no confirmation on that yet. Nothing is yet scheduled for November, and in December we will enjoy a great dinner and Stanley Hamm videos.

73, Dale, N7PEX

# Address Corrections Needed

by Dale Mosby, N7PEX

Are you "good in the book"? A couple mailings to hams indicates that about 10 percent of the addresses in the callbook are invalid. These addresses are exactly what the FCC has on file. So check the following list and see if you appear. If so, as of last March (when this database was created) the FCC did not know where you were. Why is this important? Well, it is handy for you fellow hams to be able to send you QSL cards, but it is also a license requirement. Due to an incorrectly copied call there is always a possibility of the FCC sending you a letter to which you must respond in 10 days. If they don't have a current address you certainly won't be able to meet that requirement.

If your call is not up to date just get a 610 form and send it in. The local FCC office is listed in the phone book and they will be happy to send you a 610 form. The club also has a supply so you can pick one up at a club meeting. A couple of notes about the following list. These calls came back from a mailing to Washington County hams. My daughter Harmony (N7XFR) transferred calls from letters to a compute file. There are bound to be a few typos in the list so it you see something that is not a valid call that is the reason. The data came from the QRZ CD-ROM mentioned in the newsletter a few months ago. The list was sorted by my word processor so the sort order is strictly alphabetic and does not follow the normal call sorting convention. It is unlikely I will be able to convince Microsoft to add a "callsign sort" to their word processor, so I guess I will have to write a program to do this.

aa7bv af7x ag7e aj7j al7jg k5mm  
k75w k7aub k7byk k7eqm k7hxa  
k7mtt k7owg k7vdq k7zbn ka2jdy  
ka7ajg ka7dfn ka7ejp ka7fds ka7fea  
ka7gzx ka7izs ka7kco ka7mdc ka7mxh  
ka7ody ka7oib ka7omv ka7pxv ka7rja  
ka7rxy ka7rzs ka7sfg ka7sig ka7sjl  
ka7ufh ka7uhk ka7umd ka7vce ka7vgy  
ka7vsq ka7vvp ka7vzw ka7wau  
ka7wbn ka7wko ka7wtc ka7wxg  
ka7yej kb7bdp kb7byp kb7cqz kb7efx  
kb7efy kb7ezz kb7igo kb7iy kb7kzc  
kb7lnk kb7lpq kb7ncb kb7nqk kb7nxj  
kb7yo kc7gy kc7qv kd7la kd7uz ke7o  
kf7rx kg7bb kg7bf kg7i kg7jr kg7yg  
kl7hi kt7q n0dnt n7ahd n7bef n7bep  
n7blx n7bnt n7bpt n7bxq n7cdi n7cfs  
n7cmv n7cwf n7dop n7duj n7dwl  
n7ea n7emo n7faw n7fig n7fiu n7fvw  
n7gex n7gfa n7gfs n7gpf n7hbh n7hbj  
n7hhk n7hzo n7jas n7jon n7jtr n7juw  
n7kae n7kzy n7lys n7mnr n7mwf  
n7ndu n7nrg n7ogc n7ogg n7ohh  
n7pqx n7qaf n7qiu n7sxo n7sxv n7ugv  
n7uur na7v ng7j ng7m w4jfe w6aes  
w6jyi w6mlv w7axh w7bjj w7dzh  
w7fll w7fyy w7gme w7gwr w7iyw  
w7jav w7kli w7ku w7kzg w7mfw  
w7oax w7sop w7twf w7yks w7yoi  
wa1gfm wa6kpr wa7bip wa7dpe  
wa7ecf wa7euq wa7jdc wa7mhb  
wa7uro wa7wie wa7ydb wa8tyb  
waorxm wb3elg wb7ahb wb7nvi  
wb7nxe wb7qlc wb7qxn wb7rmt  
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# Property Restrictions We Really Need

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The outcome of the Washington County tower restrictions is not known as the newsletter goes to press, but things aren't looking great. So from the internet, comes an article written by Mark Feit, KD4TAJ.

Okay, okay... I live in one of those obnoxious neighborhoods where you can hardly step off the back porch without filing an application. And I agree: Those self-righteous-couldn't-get-elected-to-student-government-in-the-ninth-grade-and-coming-back-for-revenge boneheads are choking a real good hobby to death. (Fortunately, I'm renting so it's a temporary situation.) But there's a solution! Recently, I came across the following ad on a bulletin board in the local amateur radio shop:

## ANNOUNCING THE COMMUNITY OF HAMBURG, VIRGINIA

CQ Builders, Inc., a division of the Intermod Group, is proud to announce the construction of a community of fine homes constructed with the Amateur Radio operator in mind! All units include:

- Grounded metal screening in all walls
- Three-Phase power in all rooms including bathrooms
- Microwave oven on 2.4 GHz with RF output connector
- Pre-planted radials on single-family units

Come see some of the streets we've already finished or are in the process of building...

**ARQ Avenue** Modern ranch homes with RS232C cabling between every room in the house.

**Cellular Court** Guest residences for visiting non-ham friends and relatives. Cell phones provided free of charge to yuppies feeling out of place.

**Desense Drive** Spacious water-cooled villas for those who run QRO whether it's needed or not.

**Portable Place** Residences featuring 12V DC power only.

**Reactance Road** Townhomes with extra-narrow lots for those who run verticals or like to try and load up their lawn furniture.

**TVI Terrace** Fine apartment living for stations operating exclusively on 6 meters. All units feature ten-foot clearances on the balcony suitable for half-wave verticals.

## THE FINE PRINT

Signing the deed to a Hamburg property indicates your agreement to the following:

1. **LICENSING.** You must hold an FCC-issued amateur license at the time of purchase and continue to do so until such time as you sell said property to another FCC-licensed Amateur. Revocation of your license by the FCC or other lame excuses like loss of interest in the hobby indicate a willingness to liquidate said property within ten days of such action.

2. **ANTENNA RESTRICTIONS.** Your property shall, from 24 hours past the time you move in until 3 hours past the time you move out, display at least one outdoor antenna tuned for use on the Amateur bands. Feed points shall be made available to members of the community net for random resonance inspections. Failure to

Please see *Builders...*, page 7

## OTVARC Club Contacts

### OTVARC Executive Board

President	Dale Mosby	N7PEX	640-0217
Vice Pres	Alan Churchill	AA7CV	639-5660
Secretary	Brad Beach	N7NVC	657-1781
Treasurer	Carl Clawson	WS7L	629-5796
Trustee	Al Berg	WB7SIC	640-5456
Trustee	Dave Morrison	W7JXU	645-8788
Trustee	Ira Rubin	KF7QS	244-3070
Trustee	Lynn Hurd	WB7UNU	649-9152
Trustee	Wes Allen	K7WWG	649-3295

### Other Club Contacts

ARRL Coordinator	Bob Orr	WF7Q	297-2732
Bunny Hunting	OPEN		
Contesting	OPEN		
DX News	Rich Jones	KG7FS	645-9417
Equipment Valuation	Randy Stimson	KZ7T	297-1175
Equipment Trustee	Al Berg	WB7SIC	640-5456
Emergency Services	Tim Taylor	N7UCA	292-6830
Field Day	Carl Clawson	WS7L	629-5796
Health & Welfare	Pat Griffiths	KA7UFG	649-0837
Member Badges	John Klein	KA7ICV	281-0798
Newsletter Editor	Alan Churchill	AA7CV	639-5660
Newsletter Layout	Doug Reeves	N6XHW	833-8504
Newsletter Distribution	Al Berg	WB7SIC	640-5456
Nomination of Officers	Alan Roehl	KO7B	292-5243
Project Night	Open		
Public Relations	Bill Merwin	N7VZF	644-1974
Public Service	Randy Stimson	KZ7T	297-1175
Repeater	Wes Allen	K7WWG	649-3295
RFI & TVI	Dale Mosby	N7PEX	640-0217
Satellites	Red Robert	AA7CP	357-5747
Scholarship	Pat Griffiths	KA7UFG	649-0837
Sea-Pac	Al Berg	WB7SIC	640-5456
	Brad Beach	N7NVC	657-1781
	Jim Schaeffer	KB7ADH	245-2518
	Alan Churchill	AA7CV	639-5660
Technical	Joe Boyd	N7VZS	678-2188
Tower Ordinances	Stan Griffiths	W7NI	649-0837
Trailer	Dee Lynch	KA7NPN	646-4580
Training (Code)	Tom Durell	KG7RD	
Training (Novice/Tech)	Dave Morrison	W7JXU	645-8788
Training (Upgrade)	Joe Boyd	N7VZS	678-2188
VE Testing	Alan Roehl	KO7B	292-5243
VE Test Schedule	John Klein	KA7ICV	281-0798
VHF/UHF	Bill Roth	N7RYW	297-7605

## BORSCH ELECTRONICS

Communications Servicing

9935 S.W. Johnson St.  
Tigard, OR. 97223

Joe Borsch W7PNS

(503) 684-5201

## OTVARC Club Information

**Purpose:** The Oregon Tualatin Valley Amateur Radio Club, a non-profit corporation, wants to be instrumental in helping the prospective as well as established Amateur to become a proficient communicator in the Amateur Radio Service.

Additionally, the intent is to promote the advancement of Amateur Radio Service through the following five objectives:

1. Education & training of new and licensed Amateurs.
2. Public Service during public events & community activities.
3. Emergency communications during emergencies & disasters.
4. Hobby enhancement through meetings, nets & contests.
5. Social contact with other amateurs & interested persons.

**Special Service Club:** OTVARC is an ARRL Special Service Club. The ARRL grants us this distinction due to our participation in emergency preparedness exercises, public service events and other service-oriented programs. In addition, continuing educational and training programs are conducted for FCC licenses. OTVARC benefits from you joining the ARRL through OTVARC. To join or renew your membership in the ARRL, contact the treasurer at any regular meeting.

**Newsletter:** The OTVARC Oscillator is the club newsletter. It is published monthly and is usually mailed on the first of the month. The opinions, views and recommendations of its contributors are not necessarily those of the Club, it's officers, advertisers or the Editorial Staff.

**Correspondence:** All correspondence may be sent to OTVARC, PO Box 5132, Aloha, OR 97006-0132.

**Advertising:** Classified ads are free to all paid up members. Display ads are available to approved commercial interests. To place an ad, mail your camera ready copy to the address above and indicate the size desired. All display ads run for six months at a time from August through August and August through December. All ads must be paid for in advance. Rates for 1993 are as follows:

Full Page	8" X 10"	\$200 for 6 months.
Half Page	8" X 5"	\$125 for 6 months.
Qtr Page	4" X 5"	\$75 for 6 months.
Bus Card	2" X 3"	\$35 for 6 months.

**Meetings:** We have two meetings per month. The board meeting is on the first Wednesday of each month. All club business is conducted at this meeting. All members are welcome to attend. Contact the President for location and time. The General Meeting is on the second Wednesday of each month at the Beaverton Elks Club, 3500 SW 104th Ave (1 block off Canyon road). Meetings start at 7PM. If you would like to come early, you can get a nice meal from the Elks for less than \$6.

**Membership:** OTVARC is open to anyone who breathes. You do not need to be a licensed radio amateur to join our group. Dues are as follows: Full member, \$10/yr; Associate member (nonlicensed), \$10/yr; Family members of full member, \$5/yr; Life memberships available - see Treasurer. Only full members and life members may vote on club business and serve as club officers. All memberships expire on the last day of the calendar year. If you would like to join during the year, see the club Treasurer for reduced dues.

**How to Join:** Simply mail the Member Application and Renewal Form along with your dues to the address above.



# FOR SALE OR TRADE OR WANTED

Much New And Used Equipment for sale.

The following is **used**:

2m 5/8 Wave Ground Plane \$ 20

The following is **new**:

Rohn HBU Universal House Bracket \$ 20

Rohn GB45G Guy Bracket \$ 50

Rohn TB50 Tower Bushing \$ 5

Rohn TB75 Tower Bushing \$ 5

Rohn AB Wood Block Bearing \$ 5

Rohn EP253 Guy Equalizer Plate \$ 15

Rohn EP255 Guy Equalizer Plate \$ 15

Rohn DT25 Drive Tool \$ 5

Certificate Frames, 11 x 14 \$ 2

Call Stan Griffiths, W7NI, 649-0837

Computer for sale: Amiga 500, 1M RAM, 52M hard drive, C64 emulator, IBM emulator, 5.25" IBM drive, 5.25" C64 drive, color monitor, software. Call Don Kinney, WA7JRT at 324-9835.

For Sale: Comodore C64 with 1541 disk drive, B&W monitor, TNC emulator. Make offer to Janet Bell, WB7FTC at 648-8821.

Antennas for sale:

MET 440 circularly polarized sat. antennas 6 element 144 17 element 440. \$50 each. Contact Bill, N7RYQ at 644-3739

to Alan Churchill we received an "Excellent" rating which puts us in the top 10% of the 150 or so newsletters judged.

13. Carl got a call from a retired ham who wanted to donate a Yaesu SP600 (tube finals) to a school club or some ham who has recently upgraded. Carl will contact Barb Rudolph, KX7K at Tigard High School.

14. Al Berg said we had a leftover Kenwood handheld that was not given away at SeaPac. It was suggested that we could raffle it off at the Christmas Party, or trade it for something else at HRO, or Auction it at the September Flea Market meeting. It was decided to raffle it off at the October meeting. We will sell tickets for \$1 each or 6 for \$5. We will announce the raffle at the July meeting and start selling tickets at the August meeting. We have ticket stock at Dee's shop. Geno volunteered to sell the tickets.

15. Status of 501 (c) 3: Carl will mail the Application to Al Berg who will make copies for the Board. Brad will contact Buck Summers at Hoodview for assistance in filling out the application.

# Highlights of the July 7 Board Meeting

1. Minutes of June Board Meeting approved

2. The meeting was attended by Carl Clawson, Alan Churchill, Al Berg, Dale Mosby, Lynn Hurd, Wes Allen and Bradley Beach.

3. Trailer: Carl reported that we need a new ladder. We have one rung missing on the ladder and either the run needs to be replaced or we need a new ladder. Carl will check the situation with Dee to get his thoughts.

4. SeaPac 1993: Brad reviewed the 1993 event. We made money but all the bills are not in yet so we don't know how much. Attendance was about the same as 1992 - 3300 including vendors. We received a nice letter from Rick Palm of ARRL who thought we had a really great event.

5. KGON Repeater: Wes plans to try his Dad's repeater on the tower at +100khz frequency. This will require some re-tuning by Motorola. The alternative will be to buy new crystals for Wes's repeater. ARRG's repeater is on the tower now at 442.225 Mhz and coverage has been reduced by 75% or so over its former location.

6. Financial Report: Carl reported that we cashed in one CD to shift some money to checking. This funded the club contribution to the Property Rights Preservation League of Washington County and also the trailer repair. We made about \$60 at Rickreall.

7. Ira Rubin had emergency open heart surgery and is now at home doing well.

8. Alan explained about the ARRL book Sale at Rickreall. We only got \$600 worth of books to sell but we had ordered \$9000 worth. Suggestions were made that next year we go for \$2500 or so. Alan will do followup with the league and Mary Lewis.

9. Betty, N7REX, has volunteered to do the Christmas Party. She requested \$500 for a budget. She will check out the decorations stored at Dee's shop and see about upgrading the meal and subsidizing it some from the budget. Moved, seconded and passed unanimously that \$500 be appropriated for the Christmas budget.

10. Video Projector: It was discussed that we postpone purchase of a projector for a while pending the outcome of the Washington County Tower ordinance. In the meantime we can rent Lynn's machine to use at the ATV program and the December Meeting (Christmas Party).

12. We received an award from Amateur Radio News Service for our newsletter layout and content. According

# Tower Update

By Stan Griffiths, W7NI

The latest tower ordinance hearing was held on July 27, 1993 at 6:30pm. There were approximately 250 people in attendance, all hams with the exception of 4 who opposed towers and about 10 who were there to discuss some items on the agenda other than ham towers. You may recall that three hearings without changes to the ordinances for it to become law. This was hearing number two. Number three is scheduled for August 3 at 10:30am.

Of the five Washington County Commissioners, only three were present but that is 60% and enough to conduct business. Commissioners Linda Peters and Bonnie Hays were absent.

Since they made no changes last night, the Property Rights Preservation League of Washington County still has some complaints about what this ordinance says:

1. Fees. They are still outrageous. Up to \$1250 for certain installations.
2. Setbacks. We will be required to set any tower back 100% of it's height from a neighbor's 10' x 12' tool shed [or any other structure - editor] to "protect" them.
3. There are absolute limits on tower height regardless of any other circumstances, like maybe 250 acres.
4. There are Type II and III Development Permit procedures required for some installations which means letters to your neighbors and public hearings where your neighbors are invited to speak against you.

That's most of what we think is bad about Ordinance 414. Some of our previous complaints have been resolved because we had an excellent turnout of hams at a hearing a month of so ago and they deleted a lot of ridiculous requirements then. This turn-

out wasn't so good. Are you getting tired of this whole thing? I know I am, but if we let up now, we will surely lose, and lose big time. Please don't bail out now.

We will be represented once again at the August 3 hearing and we will once again voice our complaints.

[Editor's note: The August 3rd meeting will have occurred by the time you read this. We will have a full wrap-up at the club meeting Aug 11.]



## Barbara Sue Seal

11380 SW Beaverton-Hillsdale Hwy.  
Beaverton, Oregon 97005

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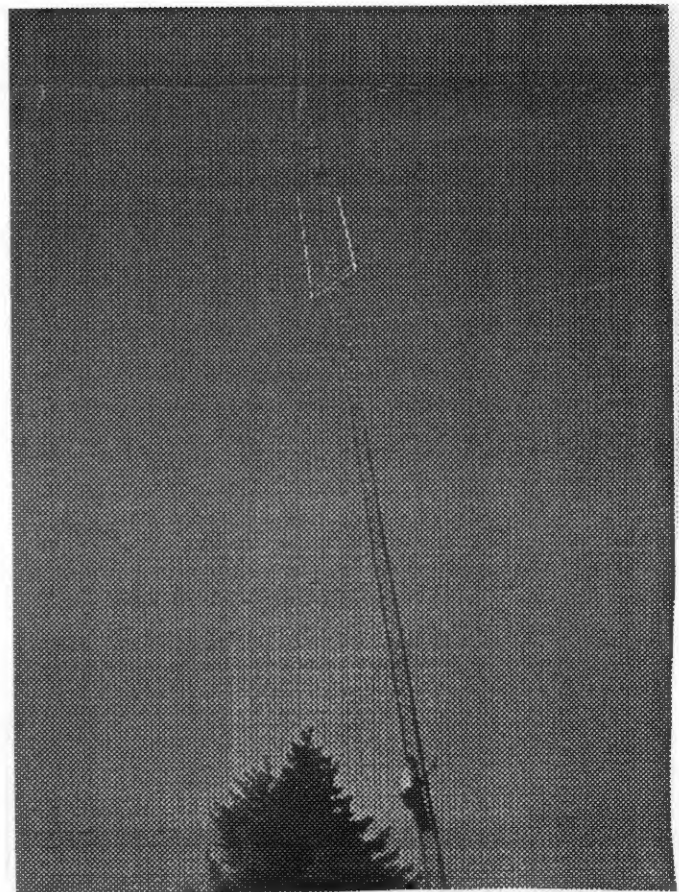
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# Builders..

from page 3

display said antennas will result in fines and replacement of your station with an extremely ratty boat anchor or HW-101 (at our option) purchased at a recent hamfest.

3. TOWERS. Towers erected on your property shall extend a minimum of 25 feet above the roof line of any structures on said property, including previously-erected towers. Crank-up towers shall not be lowered except for routine maintenance, and then only upon permission from the community net.

4. COMMUNITY NET. Participation in the community net is mandatory. Said net takes place on the third Wednesday of each month at 0000Z on 1295.30 AM simplex except when the moon is in its waning phase, in which case the net shall be on 902 MHz spread spectrum at 1845Z. Failure to check into the net indicates a willingness to operate the full duration of the next major DX contest using QRP and a severely mismatched random wire. (Residents of Desense Drive may simply bypass their linear amplifiers but must run at least 100

watts.)

5. RF EMISSIONS. Residents of each unit shall, on a monthly basis, submit proof of at least one hour of emissions on the Amateur bands from their properties daily, Field Day excepted.

FOR MORE INFORMATION, CATCH US ON 3818 OR WRITE:

CQ BUILDERS  
1010 Disk Drive  
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## 1993 OTVARC MEMBERSHIP APPLICATION AND RENEWAL FORM

Name \_\_\_\_\_ Call \_\_\_\_\_  
Address \_\_\_\_\_ Class \_\_\_\_\_  
City, State, Zip \_\_\_\_\_ Home Phone \_\_\_\_\_

You may combine your ARRL membership and OTVARC membership. We handle all the details and it makes money for the club. Thanks.

OTVARC New Membership..... \$12/yr.

OTVARC Renewal..... 10/yr

OTVARC Associate..... 10/yr.

Family Member..... 5/yr

Life Membership..... See Treasurer.

ARRL Membership..... 30/yr.

ARRL (65 & older)..... 24/yr.

ARRL Family Member..... 12/yr.

OTVARC Total \$ \_\_\_\_\_

ARRL Total \_\_\_\_\_

Grand Total \_\_\_\_\_

Date Paid \_\_\_\_\_

Check Number \_\_\_\_\_

Mail to: OTVARC P.O. Box 5132 Aloha, OR 97006-0132



## FIELD DAY RESULTS

Our station setups were very good, the food and drink the club provided was outstanding and the weather cooperated fairly well. Our ultimate score will not be out in QST until Sept. or Oct. so to give you all an idea at least as to how we did contact-wise you will see listed below a comparison against past club efforts.

1979	1011	1984	1674	1989	1507	We have some dedicated operators but not nearly as many as in past efforts. Maybe we can correct that next year??
1980	1365	1985	1397	1990	877	
1981	1450	1986	1379	1991	?? 559	
1982	1749	1987	1412	1992	687	
1983	2113	1988	1103	1993	715	

### NEWS FROM ARRL AND WESTLINK REPORT

Due to concerns about interference to navigational equipment, Northwest Airlines has banned the use of ham and CB radios, cellular phones, FM radios, remote-controlled toys, and compact disc players while in flight. It will be permissible to use portable computers, calculators, tape players, and electronic games with the Captain's approval and only while above 10,000 feet.

The FCC has released a Notice of Proposed Rule making concerning exposure to RF radiation. Two sets of guidelines will be established; one for the general public, and more stringent restrictions for engineers and technicians working around equipment at transmission sites.

August 3rd marks the 15th anniversary of Radio Shack's introduction of the Model 1, Level 1 computer. A lot of CPUs have come and gone since then. Today, even a 286 machine is considered ancient!

New question pools for the Novice and Technician written exams go into effect July 1, 1993. A new edition (second edition) of the ARRL's Novice and Technician study guide, "Now You're Talking" is available and reflects the changes. Also, on July 1st the Novice Class examinations will be placed under the Volunteer Examiner Coordinator (VEC) system. This FCC ruling changes volunteer examiner (VE) accreditation to allow General Class licensees to administer exams for the Novice and Technician licenses. Generals and up who wish to become accredited ARRL VEs can call for information at 1-800-9ARRL-VEC.

The Russian newspaper "Patriot" has published a new list of call sign prefixes for amateurs in countries of the former USSR: Armenia - EK; Azerbaydzhan - 4J; Belarus - EU, EV, EW; Georgia - 4L; Kazakhstan - UN, UO, UP, UQ; Moldavia - ER; Kyrgyzstan - EX; Russia - R, UA to UI, 4K; Tadzhikistan - EY; Turkmeniya - EZ; Ukraine - UJ to UM, UR to UZ, EM, EO. Uzbekistan was missing from the list. Russian licensing authorities are imposing licensing fees of \$35 for visiting western hams (for operations ranging from 1 to 30 days) and plan to collect up to \$135 for a 2-year visitor's license.

A couple of Michigan State University scientists have made a startling discovery: the number of sunspots that appeared in the year your mother was born can be shown to be statistically associated with your probable longevity. The children of mothers who were born during peaks in the sunspot 11 year cycle are very likely to die 2 to 3 years sooner than if their mothers had been born during the sunspot minimum. A population of over 7500 was included in this study and two studies in England have confirmed this strange phenomenon.

#### FOR SALE

Henry 2KD HF Amp	NEW!	\$1095.00
ADI 2m HT 5 watt		\$195.00
ADI 450 HT 5 watt		\$195.00

Jack N7CXX 682-7898

The amp IS unused. Needs a 30 amp service and I don't have it.





**WOW!**

A FREE

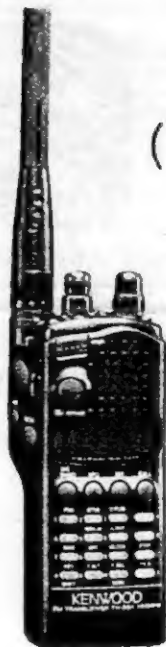
144 MHz FM TRANSCEIVER

**TH-28A** ?

(almost)

#### Features

- Both handhelds are equipped with a switchable dual-band (144MHz/440MHz) receive capability for semi-duplex cross-band operation.
- Alpha-numeric six character display and memory paging.
- Includes a high capacity NiCd battery pack, the PB-13, for 2.5 watts output on the TH-28A.
- Multifunction scanning of the band or the 41 memory channels (expandable to 240 memories with optional ME-1).
- 5 watts power output available with the optional PB-14 or PB-17, or with 13.8 VDC operation.
- 15 digit auto-dialer, including \*, #, A, B, C, D. Auto-dialer memory for up to 10 phone numbers.
- Built-in digital clock and encode / decode unit.
- 10 minute time-out timer to extend battery life.
- Direct keyboard frequency entry.
- CAP / MARS modifiable with proper license.
- All the TH-27/TH-78 accessories are compatible.



**TH-28A**

**\$399.95**

Suggested List Price:

The TH-28A covers two meters and includes a built-in UHF receiver: 118-173 MHz RX, 144-147.995 TX, 438-449.995 RX (user modifiable to cover 400-480 MHz).

## RAFFLE

TICKETS WILL BE SOLD AT THE AUGUST, SEPT. AND OCTOBER MEETINGS. PRICE IS \$1.00 PER TICKET OR 6 FOR \$5.00. THE DRAWING WILL BE HELD AT THE OCTOBER MEETING. YOU NEED NOT BE PRESENT TO WIN BUT YOU HAVE TO BUY YOUR TICKETS AT A MEETING! THIS DRAWING IS A RESULT OF OUR SEA-PAC HAM CONVENTION AND IS IN APPRECIATION TO ALL OF YOU WHO HAVE HELPED MAKE IT THE ON-GOING SUCCESS THAT IT IS...

GOOD LUCK

**THE LUCKY WINNER MAY BE YOU!**

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